Questions for Group Discussion

1. Is IPv6 the solution for future aviation networking? If so, What actions are required to make the transition happen?

- Network analysis – ultimately depends on Concept of Operations – How best to select a range of operational cases; loads and performance requirements; and get consensus on the operational scenario and depicted loads?
- What network security requirements to meet future net-centric architectures need to be explored?

Is IPv6 the solution for future aviation networking? What actions are required to make the transition happen?

- Is this the right question? Isn't it premature to make protocol choices before defining an architecture. However, is defining an independent architecture possible without ties to technology choices?
- Yes, the world is heading (considering moving) towards IPv6 – needed for interoperability. Note: When ISO was picked, it was done so for trendy reasons; be careful not to select IPv6 because it's today trend in protocols.
- What is lost by (the downside of) going toward IPv6?
- What are the certification hurdles – can certification keep pace with the technology (NO)?
- Concern about maintaining 24-bit ICAO address standard.
- Mobility issues to match defined ATN standards

Is IPv6 the solution for future aviation networking? What actions are required to make the transition happen? (2)

- Policy-based routing, dual-homing, simultaneous dual connection and (refer to morning speaker) these techniques need more research.
- IPv6 has inherent security features – use of those features needs further research.
- Commercial service provider
- TCA compliance?
- Since IPv6 is not mainstreamed – just yet; is maintainability and supportability going to be more cost effective.
- FTI is IPv4 – what are interface issues?
- Availability of certified/certifiable components
- Interoperability – need to understand transition technologies (NAS and global)

Is IPv6 the solution for future aviation networking? What actions are required to make the transition happen? (3)

- Consider full end-to-end internetworking (A/G + G/G + G/A + A/A)
- Strategic, Tactical views
- Should all application types share the same bandwidth? Yes, one time equipage is important to airlines.
- Consider the safety ramifications of shared bandwidth (FCC currently restricts this use).
- Quality of Service must support the message content??? Does this target your messages importance? Bigger the pipe - the C&C message is hidden.

How best to select a range of operational cases; loads and performance requirements; and get consensus on the operational scenario and depicted loads?

- Examine other Airspace System Programs as sources for this CNS data (VAMS)
- Define necessary the network-centric communication parameters
- Considering survivability of networks may render the need for communication parameters obsolete
- Promote business case that promote incentives to equip – design for mixed equipage (who does this?). Build this into the design.
- Benchmarking data to assess current/future operations.
- How do the needs filter back to the right organizations (e.g., spectrum)?
- What value is this process without consensus on the services to be provide/performed.

What network security requirements to meet future net-centric architectures need to be explored?

- Ensure that whatever technology is chosen – it is exportable.
- Assessment of security Threats and Vulnerabilities (w/eye on more open dissemination environment) **warning:** care should be exercised on disclosure of T&V information until it is completely reviewed/ approved by DHS and others
- Review how IETF protocols incorporate T&V into their standards –perhaps a good model.
- Prepare High-level Vulnerability Assessment using NIST 80037 as guidance.
- Global application of secure technologies
- Authentication, Confidentiality, Integrity, Non-repudiation
- Affordable based upon aviation industry business case
- Reference AEEC adhoc mtg report on Security (June 2003)
- Built-in, not bolted on!
- Consider the impact of using gateways in architecture
- Scalability
- Design to LCD of communication bandwidth and availability – making multiple systems for the different classes of aircraft may be counter-productive.
- Desktop bandwidth solutions don't automatically equate to aviation use

Other questions

- What service requirements flow from T-NAS?
- More near-term results are needed from this research (NASA vs FAA focus?).
- Airline business-case: What do they want from this?
- Capitalize on forums that airlines are active – out reach to NAS stakeholders.
- Understand FTI transition schedule – sync to it.
- Should contingency of operations issues be addressed?
- Interoperability across domains be considered.